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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/529,604

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Geoffrey Haswell

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EXAMINER

ROSENAU, DEREK JOHN

ART UNIT

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2834

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/529,604	Applicant(s) HASWELL ET AL.	
	Examiner Derek J. Rosenau	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 8-23 is/are rejected.
- 7) ☒ Claim(s) 6 and 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/28/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Oath/Declaration

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:
It does not identify the citizenship of each inventor.

It does not identify the city and either state or foreign country of residence of each inventor. The residence information may be provided on either an application data sheet or supplemental oath or declaration.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in the United Kingdom on 1 October 2002. It is noted, however, that applicant has not filed a certified copy of the 0222680.1 application as required by 35 U.S.C. 119(b).

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 47 and 118. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If

the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-5 and 8-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ipcinski (US 5216316) in view of Kotzan et al. (US 5438219) and Snyder (US 4384482).

6. With respect to claim 1, Ipcinski discloses a power generator (Fig 4), the power generator including a piezoelectric element (item 70), an actuating mass (item 60) arranged for contact with the piezoelectric element and control circuitry (item 12) in electrical communication with the piezoelectric element (column 4, lines 43-49), in which the actuating mass is arranged to deflect the piezoelectric element in response to external forces acting on the actuating mass in use to generate an electrical charge (column 1, lines 18-31).

Ipcinski does not disclose expressly that the power generator is mounted in a pneumatic tire, or that the control circuitry forms at least part of the actuating mass.

Snyder teaches a piezoelectric power generator (Fig 2) for mounting in a tire (Fig 1).

Kotzan et al. teaches a piezoelectric device in which the control circuitry (item 126) is placed on the top surface of the device (Fig 2). Since the actuating mass of

Ipcinski forms its top surface, the combination of Kotzan et al. and Ipcinski would result in the control circuitry forming at least part of the actuating mass.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to mount the power generator of Ipcinski in a tire, as taught by Snyder, and to combine the control circuit mounting position of Kotzan et al. with the power generator of Ipcinski for the benefit of being able to detect abnormal conditions in a tire (Abstract of Snyder) and as it has been held that the mere rearrangement of the components of a device is obvious (*In re Japikse*, 86 USPQ 70).

7. With respect to claim 2, the combination of Ipcinski, Kotzan et al. and Snyder discloses a power generator as claimed in claim 1. Ipcinski discloses that the power generator includes a housing for the piezoelectric element, actuating mass and control circuitry (Fig 4). Snyder discloses that the power generator includes a housing for the piezoelectric element, actuating mass and control circuitry (Fig 4), the housing being adapted to be mounted within a pneumatic tire (Fig 1).

8. With respect to claim 3, the combination of Ipcinski, Kotzan et al. and Snyder discloses a power generator as claimed in claim 2. Snyder discloses that an exterior surface of the housing has a substantially arcuate profile adapted for bonding to an arcuate interior surface of a vehicle tire (Fig 2).

9. With respect to claim 4, the combination of Ipcinski, Kotzan et al. and Snyder discloses a power generator as claimed in claim 2. Kotzan et al. discloses that an exterior surface of the housing includes an external profile for complimentary engagement with the internal pattern of a vehicle tire (Fig 2).

10. With respect to claim 5, the combination of Ipcinski, Kotzan et al. and Snyder discloses a power generator as claimed in claim 2. Kotzan et al. discloses that the housing is releasably mounted on a footing adapted to be bonded to an internal wall of a tire (Fig 2). The housing of Kotzan et al. is releasably mounted, as it can be released by removal of the nut and bolt.

11. With respect to claim 8, the combination of Ipcinski, Kotzan et al. and Snyder discloses a power generator as claimed in claim 2. Ipcinski discloses that the maximum deflection of the piezoelectric element under action of the actuating mass is limited by a portion of the housing (Fig 4). The maximum deflection is limited by the bottom of the cavity the piezoelectric element is mounted in.

12. With respect to claim 9, the combination of Ipcinski, Kotzan et al. and Snyder discloses a power generator as claimed in claim 2. Ipcinski discloses that the housing includes a base wall (Fig 4), and the piezoelectric element is supported on the housing with a central region of the element spaced apart from the base wall (Fig 4), and in which the base wall serves to limit the maximum deflection of the piezoelectric element (Fig 4).

13. With respect to claim 10, the combination of Ipcinski, Kotzan et al. and Snyder discloses a power generator as claimed in claim 2. Ipcinski discloses that the piezoelectric element is in the form of a piezoceramic disc (Figs 9-11 and column 3, lines 29-45).

14. With respect to claim 11, the combination of Ipcinski, Kotzan et al. and Snyder discloses a power generator as claimed in claim 10. Ipcinski discloses that the

piezoceramic disc (item 70) has a radius R , and is mounted on a supporting disc (items 66 and 68) having a radius greater than R (Figs 4 and 9-11).

15. With respect to claim 12, the combination of Ipcinski, Kotzan et al. and Snyder discloses a power generator as claimed in claim 2. Ipcinski discloses that the actuating mass includes an actuator (item 60) movably mounted in the housing and adapted for contact with the piezoelectric element (Fig 4).

16. With respect to claim 13, the combination of Ipcinski, Kotzan et al. and Snyder discloses a power generator as claimed in claim 12. Ipcinski discloses that the actuator includes a projection (item 64), provided for contact with the piezoelectric element (Fig 4).

17. With respect to claim 14, the combination of Ipcinski, Kotzan et al. and Snyder discloses a power generator as claimed in claim 13. Ipcinski discloses that the projection is elongate (Fig 4).

18. With respect to claim 15, the combination of Ipcinski, Kotzan et al. and Snyder discloses a power generator as claimed in claim 13. Ipcinski discloses that the projection contacts a central region of the piezoelectric element (Fig 4).

19. With respect to claim 16, the combination of Ipcinski, Kotzan et al. and Snyder discloses a power generator as claimed in claim 13. Ipcinski discloses that the projection is arranged for diametrical contact with the disc (Fig 4).

20. With respect to claim 17, the combination of Ipcinski, Kotzan et al. and Snyder discloses a power generator as claimed in claim 12. Ipcinski discloses that the actuator forms the top of the device (Fig 4). Kotzan et al. discloses control circuitry (item 126)

disposed on the top surface of the device. The combination would result in the control circuitry being on the top surface of the actuator of Ipcinski.

21. With respect to claim 18, the combination of Ipcinski, Kotzan et al. and Snyder discloses a power generator as claimed in claim 12. Ipcinski discloses that the housing includes a cap (item 60) adapted for movement with the actuator (Fig 4). As described above, the combination of Ipcinski and Kotzan et al. results in the control circuitry being mounted on the cap.

22. With respect to claim 19, the combination of Ipcinski, Kotzan et al. and Snyder discloses a power generator as claimed in claim 2.

23. With respect to claim 20, the combination of Ipcinski, Kotzan et al. and Snyder discloses a power generator as claimed in claim 1. Kotzan et al. discloses that the control circuitry is encased in a potting compound (item 132) which, in combination, would also contribute to the actuating mass. Ipcinski also discloses that the control circuitry (Fig 8, item 92) is encased in a potting material (column 5, lines 10-11). Since the combination of Ipcinski and Kotzan results in the control circuitry being shifted to the top surface of the actuator, its encasing material would also be moved to the top surface of the actuator; therefore, both the control circuitry and its encasing material would contribute to the actuating mass.

24. With respect to claim 21, the combination of Ipcinski, Kotzan et al. and Snyder discloses a power generator as claimed in claim 1. Snyder discloses that the control circuitry includes sensor circuitry for monitoring parameters local to the housing (column 2, lines 38-45).

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25. With respect to claim 22, the combination of Ipcinski, Kotzan et al. and Snyder discloses a power generator as claimed in claim 1. Snyder discloses that the power generator forms a part of a telemetry unit and the control circuitry includes sensor circuitry for monitoring environmental parameters local to the unit (column 2, lines 38-45 and lines 51-63).

26. With respect to claim 23, the combination of Ipcinski, Kotzan et al. and Snyder discloses a power generator as claimed in claim 1. Ipcinski discloses that the control circuitry includes a low power consumption protocol, for minimizing consumption of the generated power (column 4, lines 4-14).

Allowable Subject Matter

27. Claims 6 and 7 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

28. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not disclose or suggest "in which the housing is releasably mounted on the footing by means of clips" in combination with the remaining claim elements of claim 6, or "in which the footing includes air channels for allowing movement of air about the housing, in use" in combination with the remaining claim elements of claim 7.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derek J. Rosenau whose telephone number is

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(571)272-8932. The examiner can normally be reached on Monday thru Thursday 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Derek J Rosenau
Examiner
Art Unit 2834

/D. J. R./
Examiner, Art Unit 2834

/Darren Schuberg/
Supervisory Patent Examiner, Art Unit 2834